

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. After amending the claims as set forth above, claims 37-70 are now pending in this application.

Applicant wishes to thank the Examiner for the careful consideration given to the claims.

Rejection of claims 37-70 based on Riepe and Aldo

Claims 37-70 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent 6,665,950 ("Riepe") and U.S. Patent 6,261,089 ("Aldo"). This rejection is traversed for at least the following reasons.

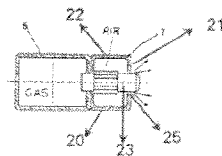
Claim 37 recites, among other things, an air tube comprising opposing first and second wall regions connected by longitudinal wall regions such that an inside space is enclosed by the first, second, and longitudinal wall regions; and a gas tube comprising an aperture for providing gas inwards to the air tube. The air tube comprises a first aperture at the first wall region for receiving the back tube of the gas burner such that the back tube extends through the first aperture from outside the first wall region into the inside space. The aperture of the gas tube is provided with a first part of a detachable connection device, for receiving a second part of the detachable connection device provided on the back tube for allowing gas from the gas tube to enter the back tube. No combination of Riepe and Aldo teaches or suggest this combination of features.

For example, Riepe and Aldo does not teach or suggest an air tube comprising a first aperture at the first wall region for receiving the back tube of the gas burner such that the back tube extends through the first aperture from outside the first wall region into the inside space. Riepe discloses a gas-heated infrared radiator with a manifold 13 with gas 14 (which the PTO considers to be the gas tube of claim 37), a hollow transverse beam 16 with air 15 (which the PTO considers to be the air tube of claim 37), and a mixing tube 9 (which the PTO considers to be the back tube of claim 37). The transverse beam 16 does not have a first aperture at the first wall region for receiving the mixing tube 9 such that the mixing tube 9 extends through the first aperture from outside the first wall region into the inside space. Thus, Riepe does not disclose a back tube passing into the air tube (which has the advantage

of cooling the back tube) or an air tube having an aperture for receiving the back tube. Accordingly, Riepe not disclose all the features of claim 37.

On pages 3-4 of the Office Action, the PTO asserts:

With regard to claims 37, 46 and 57 Aldo discloses a gas burner comprising an air tube 7 comprising opposing first 21 and second (opposite 21) wall regions connected by longitudinal wall regions 20 and 22 such that an inside space is enclosed by the first, second, and longitudinal wall regions (see fig below); an aperture (on the wall opposite 21) for providing gas inwards to the air tube, wherein the air tube comprises a first aperture 25 at the first wall region for receiving the back tube 23 of the gas burner such that the back tube extends through the first aperture 25 from outside the first wall region into the inside space (see below).



It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Riepe's appliance by having part of the back tube enclosed by the air tube in order to provide an appliance that is compact where the air in the air tube bathes the back tube and cools it. This also helps preheat the combustion air and this would lead to enhanced burner efficiency.

Aldo does not cure the deficiencies of Riepe because there is no reason for one of ordinary skill in the art to modify the device of Riepe using the teachings of Aldo as suggested by the PTO. The element 23 in the PTO's figure (which the PTO equates with the mixing tube 9 of Riepe) is merely a nozzle 4 through which the fuel gas from the collector 5 is injected so as to channel the fuel gas into the Venturi tube 3 of Aldo. (Column 2, lines 25-28 of Aldo.) The nozzle 4 of Aldo does not have the same structure or function as the mixing tube 9 of Riepe such that one of ordinary skill in the art would not equate these two elements as equivalent.

For example, the mixing tube 9 of Riepe is in fluid communication with a gas collector 14 via a gas nozzle 11, a gas-supply line 12, and a manifold 13 and with an air collector 15 via a connecting conduit 17 such that a mixing compartment 19 of the mixing tube 9 is filled from the top with a gas/air mixture. (Column 3, lines 22-32 of Riepe.) The gas/air mixture flows out of the fixing tube 9 and impinges a baffle 10 to distribute the gas/air mixture uniformly over the back face of the burner plate 5. (Column 3, lines 16-21 of Riepe.)

Downstream in the flow direction from the burner plate 5 is a combustion compartment 7 in which the gas/air mixture flowing through holes 8 in the burner plate 5 is burnt. (Column 3, lines 1-9 of Riepe.) Thus, the purpose of the mixing tube 9 of Riepe is to collect air and fuel gas for mixing and channeling into the radiator housing 1.

In contrast, the nozzle 4 of Aldo is in fluid communication with a fuel gas collector 5, which injects the fuel gas into the Venturi tube 3. The nozzle 4 of Aldo has no air inlet. Thus, the nozzle 4 of Aldo is not connected so as to mix air with the fuel gas, as is the case with the mixing tube 9 of Riepe. Indeed, the Venturi tube 3 of Aldo is the place in which the air and fuel gas are mixed. (Column 1, lines 54-58 of Aldo.) To equate the nozzle 4 of Aldo with the mixing tube 9 of Riepe is essentially changing the function of the nozzle 4 of Aldo from a gas-directing function to a mixing function. MPEP 2143 provides that a rejection based on a rationale of combining prior art elements according to known methods to yield predictable results cannot be maintained if each element in the combination does not merely perform the same function as it does separately. Because the rationale for making the proposed modification is predicated on the function of the nozzle of Aldo being changed to a mixing function (so that the nozzle 4 of Aldo can be equated with the mixing tube 9 of Riepe), the modification based on such an analysis would not have been obvious and a rejection based on the modification is improper. Thus, claim 37 is allowable.

Even if one of ordinary skill in the art would consider the teachings of Aldo applicable to the teachings of Riepe (which the Applicant does not concede), one of ordinary skill in the art would merely fit the nozzle 4 of Aldo into the mixing tube 9 of Riepe. It would not result in the mixing tube 9 of Riepe extending into the traverse beam 16 of Riepe.

Furthermore, one of ordinary skill in the art would not consider the teachings of Aldo compatible with the teachings of Riepe because Aldo does not describe a burner with a radiant panel but a burner made of metal plate material with slits. Also, the air tube in the Aldo burner is not providing all the air needed for a proper combustion, but only supplies “approximately an amount of air in the range from 1 to 30% the total air to be let into the Venturi tube” (column 2, lines 33-35 of Aldo), as opposed to the transverse beam 16 providing all of the air in the device of Riepe. Thus, the two devices work on different principles of operation and are not applicable to each. Given the very different configurations of the burners (e.g., the location of the combustion, the channeling of fuel gas and air, the

form of heat provided, etc.), an attempt to incorporate the gas/air supply system of Aldo into the gas/air system of Riepe would essentially change the principle of operation of the device of Riepe, which makes such a modification non-obvious. (See MPEP 4143.01.¹) Because the combination of Riepe and Aldo is improper, the rejection based on such a combination is improper, and claim 37 is allowable.

In addition, if the device of Riepe is modified as suggested by the PTO, the combination of Riepe and Aldo would be inoperative, which makes the proposed combination non-obvious. (See MPEP 2143.01.)² In particular, the collector 7 of Aldo is not in fluid communication with the nozzle 4. If the configuration of the collector 7 and the nozzle 4 of Aldo is used as the configuration of the transverse beam 16 and the mixing tube 9 of Riepe, respectively, the resulting combination would not have air from the transverse beam 16 entering into the mixing tube 9 of Riepe. If no air is supplied to the mixing tube 9 of Riepe, the radiator of Riepe would be inoperable. Thus, claim 37 is allowable over Riepe and Aldo.

Claim 46 recites, among other things, a radiant panel; and a back tube for providing air and gas to the radiant panel. The back tube has an orifice for allowing air from the air tube to enter inside the back tube. The air tube comprises opposing first and second wall regions connected by longitudinal wall regions such that an inside space is enclosed by the first, second, and longitudinal wall regions, and a first aperture at the first wall region for receiving the back tube such that the back tube extends through the first aperture from outside the first wall region into the inside space. The back tube is provided with a second part of a detachable connection device for receiving a first part of the detachable connection device present at the aperture of the gas tube.

As previously mentioned, Riepe and Aldo do not teach or suggest an air tube comprising a first aperture at the first wall region for receiving the back tube such that the back tube extends through the first aperture from outside the first wall region into the inside

¹ “If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).”

² “If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).”

space and the combination of Riepe and Aldo is improper because the combination is predicated on the function of the nozzle of Aldo being changed to a mixing function, any attempt to incorporate the gas/air supply system of Aldo into the gas/air system of Riepe would essentially change the principle of operation of the device of Riepe, and/or the combination of Riepe and Aldo would be inoperative. Thus, claim 46 is allowable.

Claim 57 (as amended) recites, among other things, at least one gas burner comprising a radiant panel, and a back tube for receiving air and gas to be combusted and for providing air and gas to the radiant panel; and an appliance for providing air and gas to the gas burner, wherein the appliance comprises an air tube and a gas tube. The gas tube comprises an aperture for providing gas inwards to the air tube. The air tube comprises opposing first and second wall regions connected by longitudinal wall regions such that an inside space is enclosed by the first, second, and longitudinal wall regions, and a first aperture at the first wall region for receiving the back tube such that the back tube extends through the first aperture from outside the first wall region into the inside space. The back tube has an orifice for allowing air from the air tube to enter inside the back tube. The aperture of the gas tube is provided with a first part of a detachable connection device, for receiving a second part of the detachable connection device provided on the back tube for allowing gas from the gas tube to enter the back tube.

As previously mentioned, Riepe and Aldo do not teach or suggest an air tube comprising a first aperture at the first wall region for receiving the back tube of the gas burner such that the back tube extends through the first aperture from outside the first wall region into the inside space and the combination of Riepe and Aldo is improper because the combination is predicated on the function of the nozzle of Aldo being changed to a mixing function, any attempt to incorporate the gas/air supply system of Aldo into the gas/air system of Riepe would essentially change the principle of operation of the device of Riepe, and/or the combination of Riepe and Aldo would be inoperative. Thus, claim 57 is allowable.

Claims 38-45, 47-56, and 58-70 depend from and contain all the features of claims 37, 46, or 57 and are allowable for the reasons provided above, without regard to the further patentable features contained therein.

For at least these reasons, favorable reconsideration of the rejection is respectfully requested.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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